

Notice of Allowability

Application No.

10/734,058

Examiner

Leo Boutsikaris

Applicant(s)

SLATER ET AL.

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 8/18/2004.
2. ☒ The allowed claim(s) is/are 1-17.
3. ☒ The drawings filed on 29 October 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. John Posa (Reg. No. 37,424) on 10/25/2004.

Drawings

Corrected drawings were received on 10/25/2004. These drawings are Figs. 1-6. The corrections are approved by the Examiner.

The application has been amended as follows:

IN THE SPECIFICATION

The Abstract is rewritten as follows:

An [improved] optical configuration suited to the monitoring of a process flow through the wall of a containment vessel [is capable of] for producing a high-quality, high-NA sample focus [that outperforms current options. One advantage is] and reduced residual positive spherical aberration [to minimize window signal contamination]. The invention [broadly] includes an optical path with a window extending through, and sealed to, the wall of the containment vessel, and an optical surface disposed in the optical path associated with

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minimizing aberration, increasing numerical aperture, or both. The window has a surface facing into the process flow and a surface facing away from the process flow and, [according to one configuration,] the surface facing away from the process flow is associated with minimizing aberration or increasing numerical aperture. [One optical arrangement includes a] A lens is disposed outside the containment vessel and in the optical path, with the surface of the window facing the lens being substantially spherical. With such an arrangement, the light rays of the optical path are generally normal to the surface of the window facing the lens. [The window is preferably constructed of sapphire though the invention is not limited in this regard.]

IN THE CLAIMS

In claim 3, line 3, the word --outside-- is inserted after "disposed".

In claim 3, line 3, "between the window" is deleted.

In claim 7, line 6, the word --outside-- is inserted after "path".

In claim 7, line 6, "between the window" is deleted.

In claim 15, line 2, "arcomat" is replaced by --achromat--.

In claim 17, line 2, "arcomat" is replaced by --achromat--.

The following is an examiner's statement of reasons for allowance:

Claims 1-17 are allowable over the prior art of record for at least the reason that even though the prior art discloses sight glasses and observation windows comprising a solid transparent window in conjunction with a lens in the optical path, the prior art fails to teach or reasonably suggest, regarding claims 1-6, 12, 14-15, an improved optical configuration suited to

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the monitoring of a process flow through the wall of a containment vessel, comprising a curved optical surface on the window for minimizing aberration, increasing numerical aperture, or both, and regarding claims 7-11, 13, 16-17, an improved optical configuration suited to the monitoring of a process flow through the wall of a containment vessel, comprising a window including a curved optical surface, a lens disposed in the optical path outside the vessel, the window and lens cooperatively minimizing aberration, increasing numerical aperture, or both, as set forth by the claimed combination.

It is noted that a curved optical surface in the window of an observation assembly does not inherently minimize aberration and/or increase NA. It is the optical design of the curvature of the window surface in combination with the adjacent lens that allows for the desired effect on the aberration and effective NA of the optical system.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Leo Boutsikaris whose telephone number is 571-272-2308.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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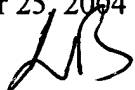
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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leo Boutsikaris, Ph.D.

Primary Patent Examiner, AU 2872

October 25, 2004

A handwritten signature in black ink, appearing to be 'LB', is written over the date 'October 25, 2004'.